

Application No. 10/028,437  
Amendment A dated December 8, 2004  
Reply to Office Action mailed June 8, 2004

### **REMARKS**

The present Amendment is in response to the Examiner's Office Action mailed June 8, 2004. Claims 14-24 are withdrawn. Claims 1-13 are now pending in view of the above amendments.

Reconsideration of the application is respectfully requested in view of the above amendments to the claims and the following remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in the order in which the corresponding issues were raised in the Office Action.

Please note that the following remarks are not intended to be an exhaustive enumeration of the distinctions between any cited references and the claimed invention. Rather, the distinctions identified and discussed below are presented solely by way of example to illustrate some of the differences between the claimed invention and the cited references. In addition, Applicants request that the Examiner carefully review any references discussed below to ensure that Applicants' understanding and discussion of the references, if any, is consistent with the Examiner's understanding.

#### **I. Restriction Requirement**

Applicant's express their appreciation to the Examiner for conducting a telephone interview with Eric L. Maschoff on May 12, 2004. Further to that telephone interview, Applicants affirm the election of claims 1-13 without traverse. Claims 14-24 are withdrawn and Applicants reserve the right to pursue the subject matter of those claims by way of one or more continuation or divisional applications.

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## II. PRIOR ART REJECTIONS

### A. Rejection Under 35 U.S.C. §102

The Examiner rejects claims 1-13 under 35 U.S.C. § 102(c)<sup>1</sup> as being anticipated by *Hu* (United States Patent No. 6,658,040). Applicants respectfully traverse this rejection in its entirety because it fails to disclose each and every element of the claimed invention.

In particular, each of the rejected claims are directed to a VCSEL structure wherein an oxide insulating region and an ion implanted spatial region are implemented so as to together function to guide the current into an active region. This is clearly not shown by *Hu*. In fact, the entire focus of *Hu* is directed to the notion of an "insulating region" 240 to provide the current confining function – wherein the insulating region is formed exclusively by way of an oxidized layer (188 in the drawings). Nowhere does the reference teach or suggest that the current confinement be provided by way of an ion implanted region and an oxide insulating region. Indeed, the only mention of the use of ion implantation is in the background section at column 1 (line 45) of *Hu*, wherein the drawbacks of such an approach are mentioned:

Early designs utilized either etched mesa or ion-implanted regions to contain the current flow. However, these approaches are not satisfactory for small size devices. For the etched mesa approach, there is the problem of light scattering. For the implanted approach, there is the problem of optical confinement in the implanted structure.

Further, the element noted by the Examiner – element 250 – is disclosed as the first implantation region or area, or the "semiconductor portion." Nowhere is it suggested that any portion of this region be ion implanted so as to act in conjunction with an oxidized region so as to confine current flow.

Thus, for at least this difference, each of the pending claims are distinguishable from the teachings of *Hu*. As such, it is respectfully requested that the rejection of claims 1-13 be withdrawn, and the claims allowed.

<sup>1</sup> Because *Hu* is only citable under 35 U.S.C. § 102(e), Applicants do not admit that *Hu* is in fact prior art to the claimed invention but reserve the right to swear behind *Hu* if necessary to remove it as a reference.

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### **III. Obviousness Type Double Patenting Rejection**

In the Office Action, the Examiner rejects claims 1-13 under the judicially created doctrine of provisional obviousness-type double patenting in view of Application Serial No. 10/028,436. Applicants submit herewith a terminal disclaimer relative to Application Serial No. 10/028,436 in order to overcome this rejection. Withdrawal of this rejection and allowance of the pending claims is respectfully requested in view of the above amendments and the terminal disclaimer.

Application No. 10/028,437  
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### CONCLUSION

In view of the foregoing, and consistent with the tentative agreement reached during the Examiner Interview, Applicants believe the claims as amended are in allowable form. In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, or which may be overcome by an Examiner's Amendment, the Examiner is requested to contact the undersigned attorney.

Dated this 8th day of December, 2004.

Respectfully submitted,



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